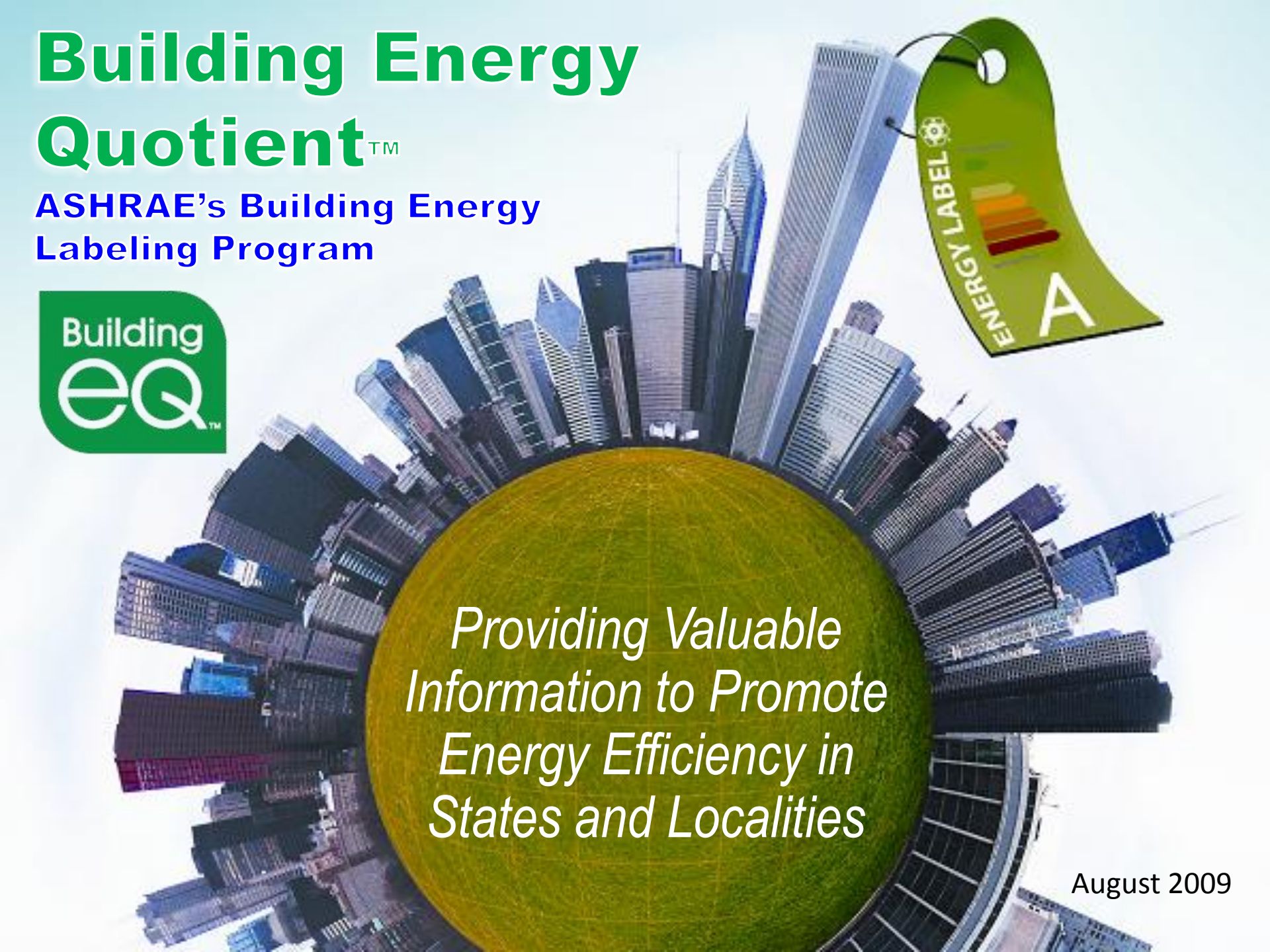
Building Energy Quotient™

ASHRAE's Building Energy Labeling Program



Providing Valuable Information to Promote Energy Efficiency in States and Localities

August 2009

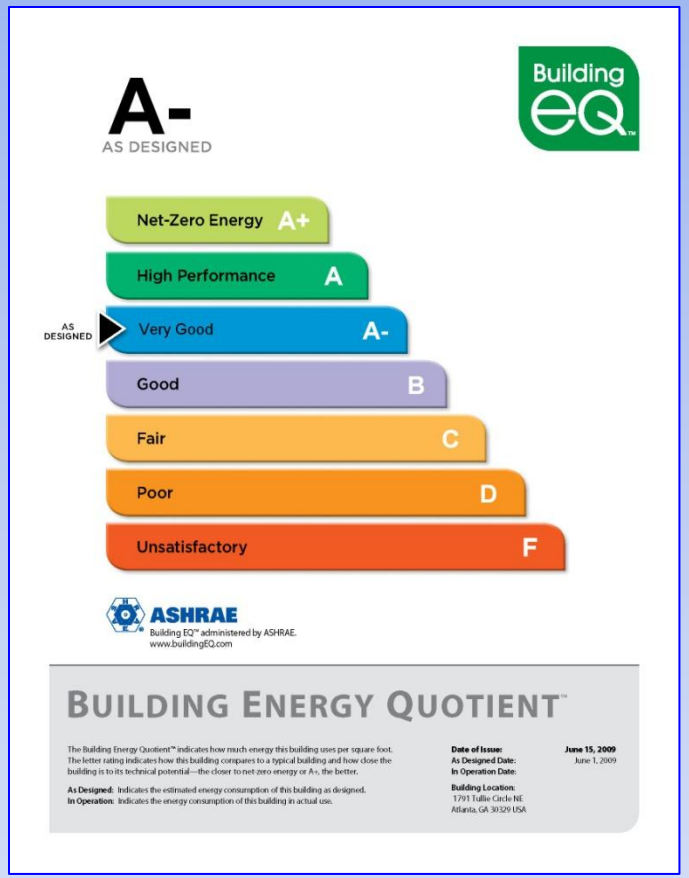
Who is ASHRAE?

American Society of Heating, Refrigerating and Air-conditioning Engineers

To advance the arts and sciences of heating, ventilating, air conditioning and refrigerating to serve humanity and promote a sustainable world.

- 52,000 members worldwide in more than 130 countries
  - Consulting engineers, architects, contractors, manufacturers
- 130 standard and guideline project committees with some 80 ANSI-approved standards
- Provides building designers with beyond code guidance through its *Advanced Energy Design Guides* and *ASHRAE GreenGuide*
- One of few HVAC&R organizations in world with own research program
- Standards on IAQ, energy efficiency, high-performance buildings, and HVAC&R equipment

Building Energy Labels Provide. . .



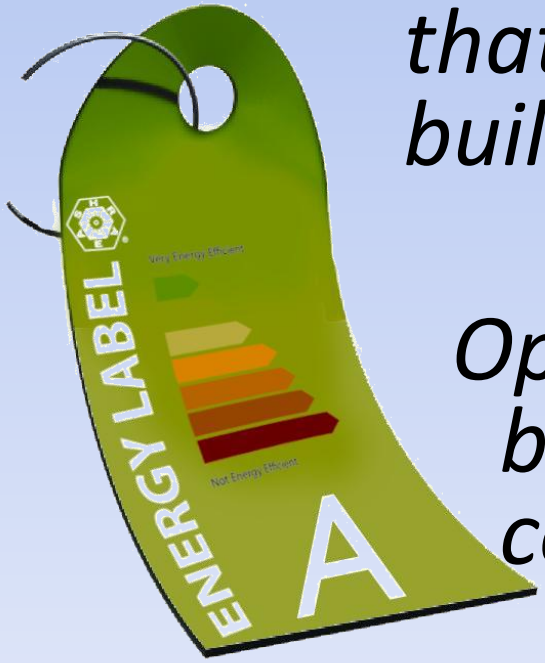
- Information on the potential and actual energy use of buildings
- Feedback to building owners and operators on how their building is performing
- Insight into the value and potential long-term costs of a building
- Differentiation in the marketplace

Building Energy Labels Provide. . .

Market-based forces to influence energy efficiency investment opportunities

Owners flexibility through investment in the technologies and practices that make the most sense for their building

Opportunities to differentiate their building in a technically sound and consistent manner

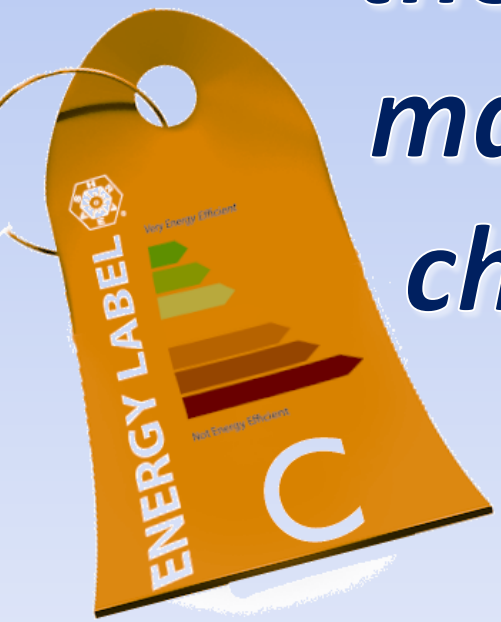


Why ASHRAE?

- Over 100 years of experience in the building sciences
- Strong technical expertise across all aspects of building design and operation
- Historic focus on developing consensus-based, non-commercial documents
- Respect and credibility within the building community

Why Now?

As the nation looks to reduce its energy use, information is the critical first step in making the necessary choices and changes



These Buildings are "Green" How Efficiently Do They Use Energy?

This Building has a Good Energy Quotient

Why Now?

- Mandatory labeling requirements already in place:
  - European Union
  - California
  - Washington, DC

Now is the time to introduce a label that can serve as a consistent model for such mandatory programs in the U.S.

What types of Ratings can Buildings Receive?

- The ***As Designed Rating*** (asset) provides an assessment of the building based on the components specified in the design—including mechanical systems, building envelope, orientation, and daylighting. The asset rating will be based on the results of a building energy model.
  - Applicable to both new and existing buildings

What types of Ratings can Buildings Receive?

- The ***In Operation Rating*** (operational) provides information on the measured energy use of a building and is based on a combination of the structure of the building and how it is operated.
  - Applicable for existing buildings and after 12-18 months of operation for new buildings

Providing Relevant Information to the Audience

- The **Label**:
  - Most visible component of the program
  - Simple to understand and targeted at the **general public**
  - Suitable for display in building lobbies and marketing materials
  - Would satisfy public disclosure requirements at the state and local level

Providing Relevant Information to the Audience

- The **Certificate**:
  - Technical information explaining the score on the label
  - Provide information useful to **building owners**, **potential owners and tenants**, **utilities**, and **operations and maintenance personnel**
  - Includes many value added features

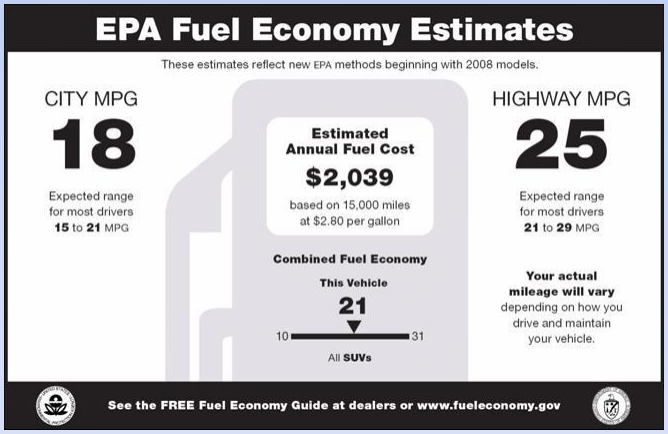
Providing Relevant Information to the Audience

- The **Documentation**:
  - Background technical information reflecting the information contained on the label and certificate
  - Useful information for **engineers**, **architects**, and technically savvy building owners or prospective owners in determining the current state of the building and opportunities for improving its energy use

Informing Consumers to Allow Educated Choices is Not New

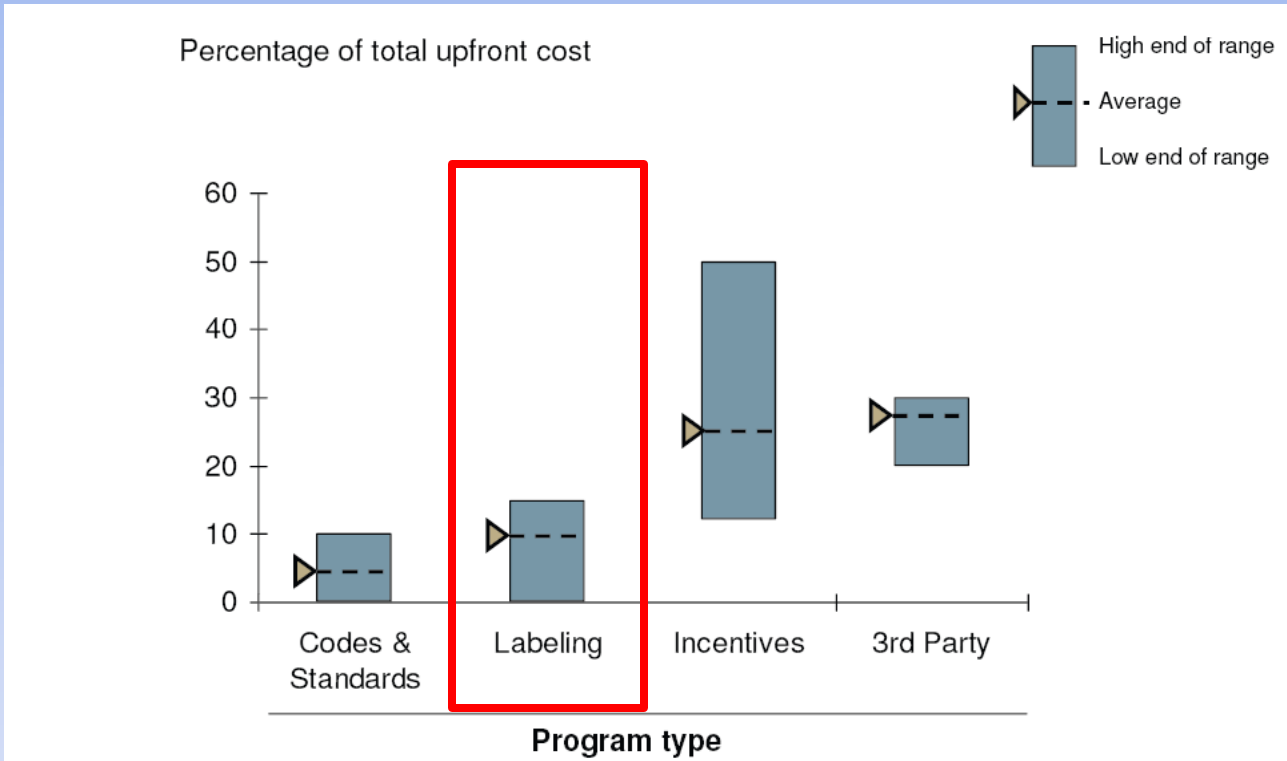
Louisville, KY
Restaurant Sanitation Ratings

Car Fuel Economy Estimates



Nutrition Facts Label

Is a Building Energy Disclosure Program a Cost Effective Means for Reducing Energy Use?

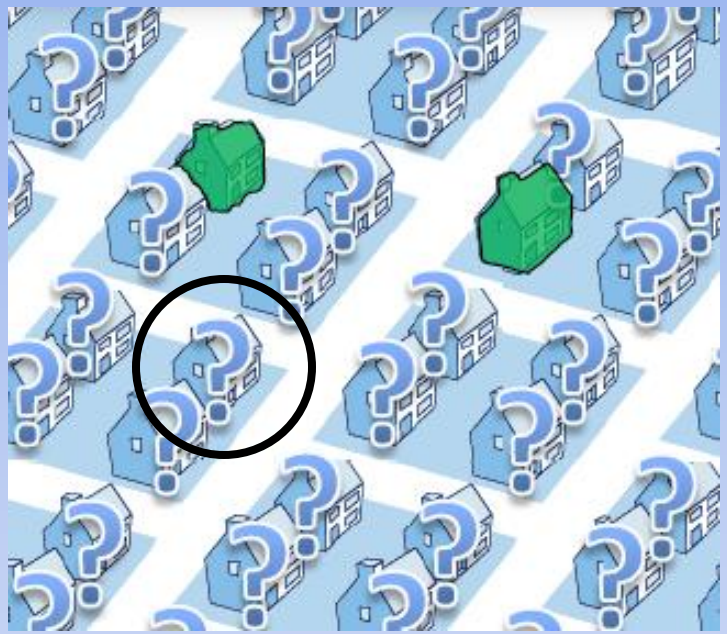


Source: Scenarios for a Clean Energy Future, Interlaboratory Working Group, 2000; McKinsey analysis, EIA, ACEEE, From 861 filings

How will a Building Energy Disclosure Program Benefit my Community?

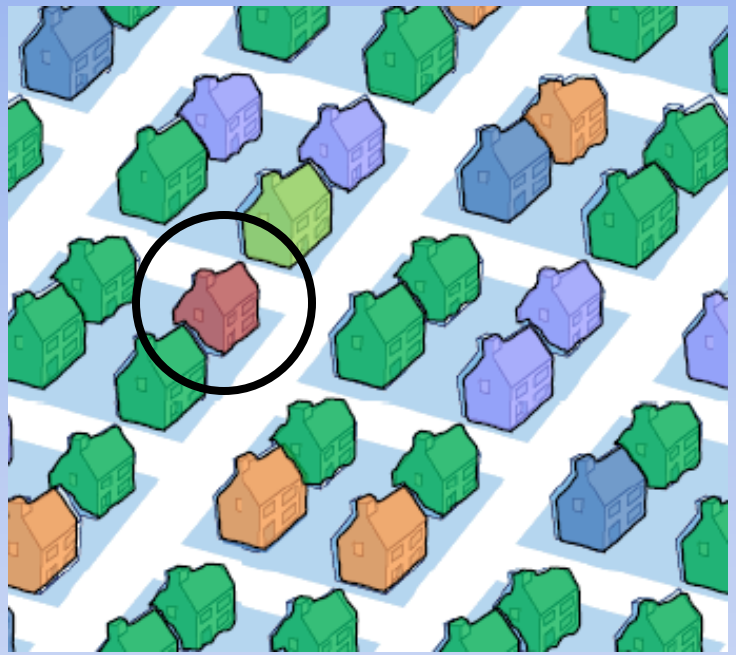
- Provides a mechanism for measuring all building energy consumption within a community
- Assist in enforcement of building energy codes
- When used in public buildings, demonstrate responsible use of tax payer funds
- Protect consumers from unknown future energy costs
- Reduces energy use while allowing building owners to make decisions about their property

Will a Voluntary Program Provide the Same Incentives as a Mandatory One?



Voluntary Program

- Is this a bad building or just not measured?
- What will my energy bills be?
- How do I compare energy use for different buildings?



Mandatory Program

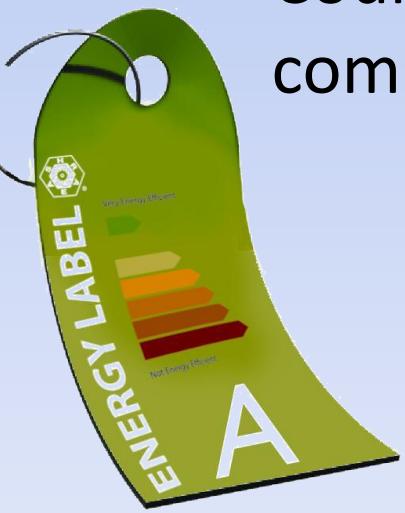
- This building could use improvement.
- Long-term energy costs don't justify the asking price.
- I have opportunities to improve!
- My competition has better marketability.

How Can Energy Disclosure Requirements be Implemented?

- Require all new buildings to obtain an asset rating before issuing building permits
- Require disclosure of past operational energy use and/or asset rating upon sale or lease of existing buildings
- Require existing buildings to report operational energy use with schedule for implementation based on square footage

How is the Building EQ Program Different from Existing "Green" Programs like LEED or GreenGlobes?

- It focuses solely on a building's **energy** use to allow greater concentration on understanding energy use and **identifying opportunities** for improvement
  - Could be used to improve/verify energy component of green building rating systems



How is the Building EQ Program Different from Energy Star?

- Building EQ provides greater differentiation for higher performing buildings thus allowing and encouraging greater emphasis on the top performers
- An expansion of the type and amount of information provided
  - Mechanism for labeling building types outside Energy Star system
  - Numerical and Qualitative scores easily comparable across similar buildings

The Value-Added Features:

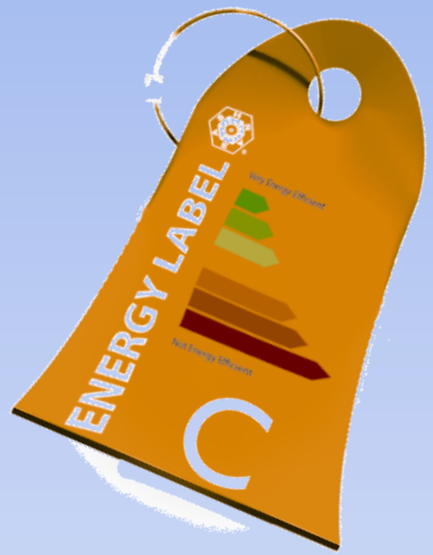
- Potential side-by-side comparison of *As Designed* (asset) and *In Operation* (operational) Ratings
- Peak demand reduction and demand management opportunities
- Energy use from on-site renewables
- Measurement-based Indoor Environmental Quality (IEQ) indicators to assure levels of service are maintained
- List of operational features including commissioning activities, energy efficiency improvements, plus information on how performance can be improved

Developing the Program

- An international team of experts representing a variety of fields critical to producing a technically sound and widely applicable program.
  - Members familiar with the Energy Star Program and the European Union labeling programs, building energy modeling experts, and representatives from the utility, government, and advocacy community.
  - Following development of the initial program, ASHRAE will make use of its broad technical resource network to validate and enhance the program.

Supporting the Program

- Developing the tools and resources to support utilization
  - Educational Programs
  - Instruction Manuals
  - Technical Guidance
  - Advocacy Materials
  - Marketing Materials
  - User-friendly Internet-based Interface
  - Personnel Certification Program on Energy Modeling
  - Criteria for a Qualified Energy Assessor



www.buildingEQ.com